

Rec'd PCT/PTO 11 FEB 2005 #2

PC U03/01016



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WITNESS my hand this  
Nineteenth day of August 2003

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**PROVISIONAL SPECIFICATION**

**Applicant(s):**

PETER CLIFTON

CRAIG DEAN CHAMULKO

**Invention Title:**

TAMPER-PROOF CUP

The invention is described in the following statement:

## A DRINKING APPARATUS

### Technical Field

This invention relates to a drinking apparatus.

5

### Background to the Invention

When a user is keeping a drink in a container such as a cup or glass, there exists the risk that the drink may be deliberately contaminated by a person introducing a foreign substance into the cup or glass such as by dropping the foreign substance into the upper opening of the cup or glass. A person may introduce a toxic substance to deliberately harm the user, or may introduce a drug in order to take advantage of the user when they are under the effects of the drug. Such a practice is sometimes called "spiking a drink". In recent times, there have been reports that females have been the victims of males spiking their drinks with drugs such as Rohypnol. The males reportedly take advantage of females sexually when they are under the influence of the drug and unable to defend themselves. This practice is sometimes called "date rape" and is reported to be carried on in bars and nightclubs.

There is a need for an arrangement which would ameliorate the above problem.

### Summary of the Invention

In a first aspect the present invention provides a drinking apparatus including:

- a container arranged to completely encapsulate liquid;
- an aperture disposed on the container;
- the aperture is biased to a closed condition to resist the introduction of foreign substances into the container through the aperture;
- the aperture is biased to an open condition when liquid is being removed from the container.

Preferably, the apparatus is arranged to allow the

liquid to be removed by being drawn through the aperture.

The aperture may include a valve element disposed within the aperture, movement of the valve element between an open and closed position causes the aperture to operate  
5 in the open and closed conditions respectively.

The aperture may be biased to the closed condition by gravity.

The aperture may be biased to the open position by liquid being removed from the container.

10 The container may include a cup and a lid.

The lid may be a snap fit onto the cup.

The lid and cup may fit together closely to resist removal of the lid by use of a leveraging tool.

15 The lid and cup may be arranged so that removal of the lid from the cup results in damage to either the lid or cup.

The aperture may be the bore of a straw.

20 The straw may be marked on its outer surface in the region of the valve element so that removal of that region of the straw is apparent to a user.

The region of the straw may be marked by colouring the region.

The region of the straw may be marked by being fluorescent.

25 The region of the straw may be marked by being luminous.

It can be seen that a drinking apparatus according to the present invention is useful to prevent the introduction of foreign substances into a persons drink.  
30 These foreign substances can include pharmaceutical substances, drugs or poisons in solid, liquid or powder form.

#### **Brief Description of the Drawings**

35 An embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a plan view of an embodiment of a drinking apparatus according to the present invention;

Figure 2 is a cross section view along the line A-A of Figure 1;

5 Figure 3 is an enlarged detail view of region C of Figure 1;

Figure 4 is an enlarged detail view of region B of Figure 2 with the valve element in the open position;

10 Figure 5 is an enlarged detail view of region B of Figure 2 with the valve element in the closed position;

Figures 6, 7 and 8 are top, side and plan views respectively of the valve element of Figure 2;

Figure 9 is a top view of the straw and valve element according to an alternative embodiment of the invention;

15 Figures 10 is a cross section view along the line D-D of Figure 9 showing installation of the valve element;

Figure 11 is a cross section view along the line D-D of Figure 9 showing the valve element in the open position; and

20 Figure 12 is a cross section view along the line D-D of Figure 9 showing the valve element in the closed position.

#### **Detailed Description of the Preferred Embodiment**

25 Referring to Figures 1 and 2, a drinking apparatus 10 is shown including a container made up of cup 12 and lid 14. The container includes an aperture in the form of the bore of straw 16 which is retained with lid 14 such as by being integrally formed with lid 14 by moulding the straw  
30 16 and lid 14 as one component. Straw 16 includes a valve element 18. Valve element 18 includes through holes 20.

In use, a drink is poured into cup 12 whilst lid 14 is not engaged with the cup. When the drink has been poured, lid 14 is snap fitted to cup 12. Lugs 22 on lid  
35 14 engage under annular and inwardly directed projection 24 on the inner surface of cup 12. After engaging lid 14 and cup 12, they cannot be separated without damaging

either the lid 14 or the cup 12. This provides a tamper evident mechanism to alert a user to the possibility that the container has been interfered with and possibly has had a foreign substance introduced into it.

5 Referring to Figure 3, lid 14 and cup 12 engage with a close fit. This prevents a levering tool, such as a knife blade or screwdriver, from being inserted between the lid 14 and cup 12 for the purpose of prising off lid 14.

10 Foreign substances are prevented from being introduced to the container by way of straw 16 by valve element 18. Referring to Figures 4, when a user sucks on straw 16 the fluid that rises up the straw causes valve element 18 to move to the open position. At other times,  
15 valve element 18 is biased by the force of gravity to the closed position shown in Figure 5. In this position, valve element 18 rests on valve seat 19. Valve seat 19 blocks the through holes 20 in valve element 18, thus preventing any foreign substances from by-passing valve  
20 element 18 to the container.

Annular projection 21 prevents valve element 18 from coming out of the upper end of straw 16. Annular projection 21 may be formed by applying heat and pressure to the straw to deform the straw.

25 Valve element 18 could also be substantially spherical to form a ball valve. In this case, the diameter of the sphere must be less than the inner diameter of the straw in the vicinity of the valve element to allow liquid to pass by the valve element when in the  
30 open position.

Referring to Figures 9 to 12 an alternative embodiment of a valve element 18 is shown in the form of a sphere. The sphere is made from the same material as the cup and lid. The underside of valve seat 19 includes a  
35 lead-in taper 26 which assist insertion of the sphere into the straw by use of mandrel tool 28. In the open position, sphere is prevented from exiting upper end of

straw 16 by covered end 30. Liquid may flow out of straw 16 through holes 32. In the closed position valve seat 19 prevents foreign substances from by-passing the sphere and entering the container.

5       The outside of straw 16 is coloured by application of a fluorescent or luminous non toxic dye (not shown) in the vicinity of valve element 18. The fluorescent or luminous colouring improves visibility in low light or dark conditions. If the straw 16 is cut to remove the valve  
10    element, this will be readily apparent to a user because they will know to expect to see the coloured portion on a container that has not been tampered with.

      The lid 14, cup 12 and straw 16 are formed from clear, recyclable plastic that is difficult to penetrate  
15    with a hypodermic needle. A suitable plastic is Polypropylene Grade, wide spec. 4-14 Thermoplastic (TPE) or equivalent, talc filled with a low flow melt index.

      After use, the container may be returned to a central collection point. At this collection point the lid is  
20    forcibly removed from the cup resulting in damage to either the cup or lid. Any liquid remaining in the cup is discarded and the plastic components of the assembly are recycled.

      Whilst the embodiment of the invention described  
25    herein includes an aperture in the form of a straw it is not limited to this arrangement. An aperture that allows removal of liquid only when the apparatus is tipped for drinking could also be used.

      Any reference to prior art contained herein is not to  
30    be taken as an admission that the information is common general knowledge, unless otherwise indicated.

      Finally, it is to be appreciated that various alterations or additions may be made to the parts previously described without departing from the spirit or  
35    ambit of the present invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A drinking apparatus including:  
5 a container arranged to completely encapsulate liquid;  
an aperture disposed on the container;  
the aperture is biased to a closed condition to resist the introduction of foreign substances into  
10 the container through the aperture;  
the aperture is biased to an open condition when liquid is being removed from the container.
2. A drinking apparatus according to claim 1 wherein the  
15 apparatus is arranged to allow the liquid to be removed by being drawn through the aperture.
3. A drinking apparatus according to either claim 1 or  
claim 2 wherein the aperture includes a valve element disposed within the aperture, movement of the valve  
20 element between an open and closed position causes the aperture to operate in the open and closed conditions respectively.
4. A drinking apparatus according to any preceding claim  
wherein the aperture is biased to the closed condition by gravity.
- 25 5. A drinking apparatus according to any preceding claim wherein the aperture is biased to the open position by liquid being removed from the container.
6. A drinking apparatus according to any preceding claim including a cup and a lid.
- 30 7. A drinking container according to claim 6 wherein the lid is a snap fit onto the cup.
8. A drinking apparatus according to either claim 6 or  
claim 7 wherein the lid and cup fit together closely to resist removal of the lid by use of a leveraging  
35 tool.
9. A drinking apparatus according to any preceding claim wherein the lid and cup are arranged so that removal



of the lid from the cup results in damage to either the lid or cup.

10. A drinking apparatus according to any preceding claim wherein the aperture is the bore of a straw.

5 11. A drinking apparatus according to claim 10 wherein the straw is marked on its outer surface in the region of the valve element so that removal of that region of the straw is apparent to a user.

10 12. A drinking apparatus according to claim 11 wherein the region of the straw is marked by colouring the region.

13. A drinking apparatus according to claim 11 wherein the region of the straw is marked by being fluorescent.

15 14. A drinking apparatus according to claim 11 wherein the region of the straw is marked by being luminous.

15. A drinking apparatus substantially as described herein with reference to the accompanying drawings.

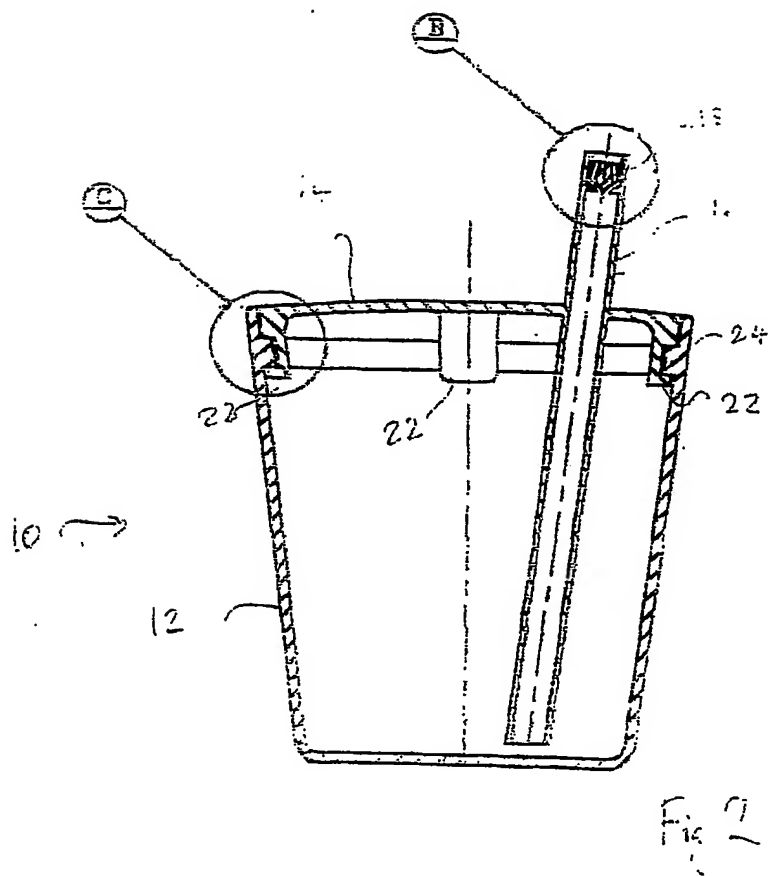
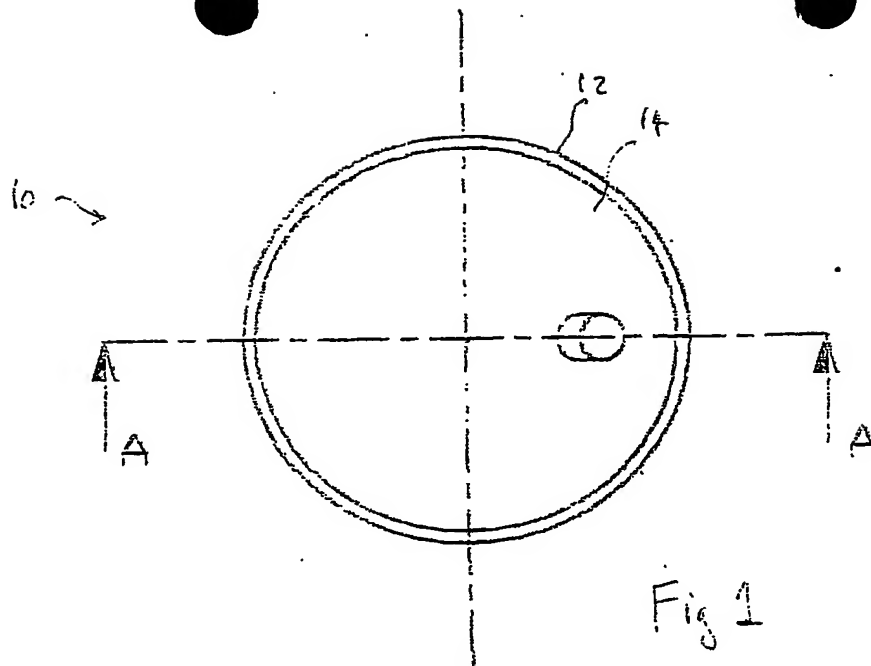
20 Dated this 12th day of August 2002

**PETER CLIFTON**

By their Patent Attorneys

GRIFFITH HACK

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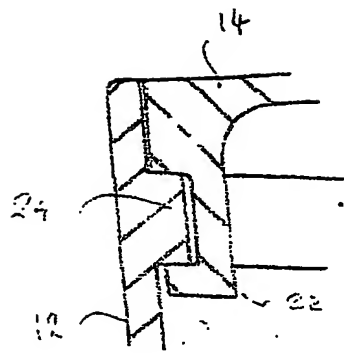


Fig 3

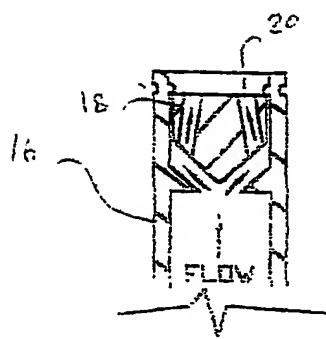


Fig 4

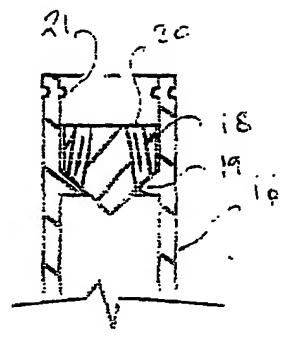


Fig 5

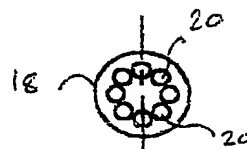


Fig 6

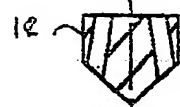


Fig 7

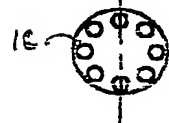


Fig 8

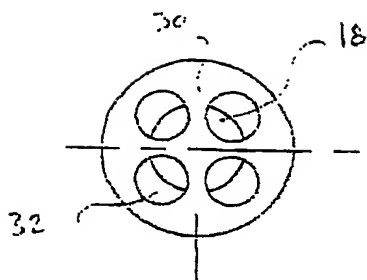


Fig 9

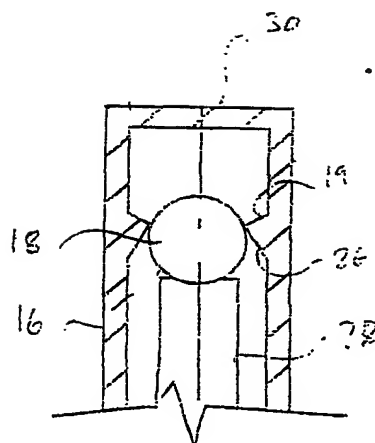


Fig 10

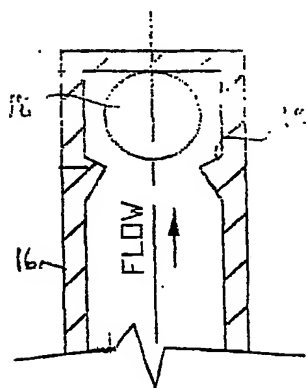


Fig 11

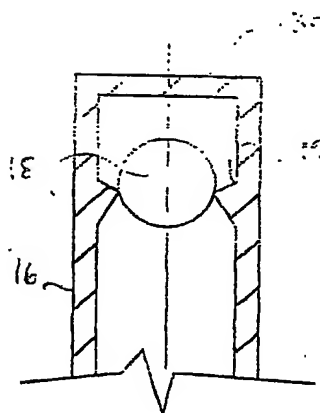


Fig 12

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